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**In the Claims**:

1. (Original)   Data filtering apparatus comprising:

an input for receiving a stream of data, each data item taking a range of at least two values ranging between a low value to a high value,

a segmentation device for dividing said stream into segments,

a segment midpoint definer for defining a midpoint of each segment,

a segment orderer for ordering said segment in a first direction from low to high on a first side of said midpoint and in a second direction from low to high on a second side of said midpoint,

an extremity filter unit for comparing said ordered data on either side of said midpoint to create a temporary output per segment, for each segment, each data item on either side of said midpoint being given an extremity filter value, said filter unit being operable to utilize said ordering to find said extremity value via a minimal number of comparisons,

said extremity filter for initially comparing a single end of each segment, and being operable to alternate between ends per segment,

said extremity filter being further operable to compute remaining ends via comparisons of the middles of presently un-compared ends to the middle of the compared ends, and to conditionally copy a half of the compared end onto the un-compared end.

2. (Currently Amended)     Data filtering apparatus Apparatus according to claim 1, said extremity filter further being operable to copy the compared end of the previous segment.

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3. (Currently Amended)      Data filtering apparatus Apparatus according to claim 1, said extremity filter further being operable to copy the compared end of the subsequent segment.

4. (Original)   Data filtering apparatus according to claim 1, said segment orderer being connected to receive segmented data, and to re-write the data in each segment such that the data is monotonically increasing from the center of each segment forward, and from the back of the segment monotonically decreasing to the center of the segment.

5. (Original)   Data filtering apparatus according to claim 1, said segment orderer being connected to receive segmented data, and to re-write the data in each segment such that the data is monotonically decreasing from the center of each segment forward, and from the back of the segment monotonically increasing to the center of the segment.

6. (Currently Amended)      Data filtering apparatus Apparatus according to claim 1, said extremity filter being a maximal filter, and said extremity value being a maximal value.

7. (Currently Amended)      Data filtering apparatus Apparatus according to claim 1, said extremity filter being a minimal filter, and said extremity value being a minimal value.

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8. (Currently Amended)    Data filtering apparatus Apparatus according to claim 6, said segment having an increasing part and a decreasing part, said extremity filter being operable to compare the value of the middle of the decreasing segment with the value at a corresponding position in the increasing segment, and further comprising a value copier for copying data values between a front half of the increasing segment and a front half of the decreasing segment, the value copier being set to copy the data values from the front half of the increasing segment onto the front half of the decreasing segment when the compared value in the front segment is larger, and otherwise to copy the data values from the back half of the back segment into the back half of the front segment.

9. (Currently Amended)    Data filtering apparatus Apparatus according to claim 8, the segmentation device being operable to define new segments repeatedly and copying parts of each segment, until an end of said input data is reached.

10. (Currently Amended)    Data filtering apparatus Apparatus according to claim 7, said segment having an increasing part and a decreasing part, said extremity filter being operable to start with an increasing part of the segment, comparing a middle value of the decreasing segment part with a correspondingly positioned value of the increasing segment part, said extremity filter comprising a value copier set to copy the data values from the front half of the decreasing segment onto the front half of the back segment when the compared value of the increasing segment part is smaller, and to copy the data value from the back half of the back segment when the compared value of the increasing segment part is larger.

11. (Currently Amended)    <u>Data filtering apparatus</u> Apparatus-according to claim 10, the segmentation device being operable to define new segments repeatedly and copying parts of each segment, until the data end is reached.

12. (Original)  An apparatus for filtering data, comprising:

an input for receiving a series of data values ranged between a low extremity and a high extremity, said data values being in segments ordered such that the data is monotonically increasing in a first direction from the midpoint and monotonically decreasing in a second direction from the midpoint,

a comparator being set to compare the middle value of the first half of each segment with the middle value of the second half of the respective segment, the comparator setting the copier to copy a respective value from the second segment onto the first segment in accordance with the comparison result.

13. (Original)  Apparatus according to claim 12, said comparator alternatively, in accordance with the comparison result being operable to compute the values of the first segment by comparing them to the corresponding values in the second segment.

14. (Original)  Apparatus according to claim 12, wherein said data is image data.

15. (Original)  Apparatus according to claim 14, wherein said values are intensity values.

16. (Currently Amended)      Data filtering apparatus ~~Apparatus~~ according to claim 1, said data being digital data.

17. (Currently Amended)      Data filtering apparatus ~~Apparatus~~ according to claim 1, connected as a preprocessor for an edge-detection device.

18. (Currently Amended)      A method for data filtering capable of computing both minimal and maximal values per point of a given data input comprising:

>   segmenting said data input;

>   comparing two successive data ~~inputs~~ input segments to find a minimum and a maximum thereof,

>   with said segmentation, using the minimum in a minimal filter to produce a minimal filter output for said data, and

>   with said segmentation using the maximum in a maximal filter to produce a maximal filter output for said data.

19. (Original) A method of extremity filtering of a stream of data items, each data item taking a value between a low extremity and a high extremity, the method comprising:

>   segmenting said data stream into segments of a predetermined length around a segment midpoint,

>   ordering the data in the segment around the midpoint such that on each side of the midpoint, successive data items have values which change in only one direction

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between said low and said high extremity, the direction being opposite on each side of the midpoint,

for each side of the midpoint, finding a middle data value,

comparing said respective middle data values of said sector, and

copying values from one side of said midpoint to the other in accordance with the result of the comparison.

20. (Currently Amended)    A method capable of efficiently computing a maximum filter of a minimum filter comprising:

computing the minimum filter using data segmented according to a predetermined segmentation pattern,

maintaining said data segmentation pattern of the minimum filter,

passing the data segmentation pattern from the minimum filter to the maximum filter,

the maximum filter using the predetermined data segmentation pattern to efficiently compute values for segments of said segmented data the segment values.

21. (Currently Amended)    A method capable of efficiently computing a minimum filter of a maximum filter comprising:

computing the maximum filter using data segmented according to a predetermined segmentation pattern,

maintaining said data segmentation pattern of the maximum filter,

passing the data segmentation pattern from the maximum filter to the minimum filter,

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the minimum filter using the predetermined data segmentation pattern to efficiently compute values for segments of said segmented data ~~the segment values~~.

22. (Original) A method according to claim 19, wherein a result of said comparison is that a first middle data value of a first side of said segment is higher then a second middle data value of a second side of said segment, said method comprising copying data from said first side of said segment to said second side of said segment.

23. (Original) A method according to claim 19, wherein a result of said comparison is that a first middle data value of a first side of said segment is lower than a second middle data value of a second side of said segment, said method comprising copying data from said second side of said segment to said first side of said segment.

24. (Original) A method according to claim 19, said data being image data.

25. (Original) A method according to claim 19, said data being digital data.

26. (Original) A method according to claim 24, said values being intensity values.

27. (Original) A method according to claim 19, said segmenting being carried out successively incrementally along said data stream.

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28. (Original) A method according to claim 27, said copying being arranged to provide edge enhancement within said data.

29. (Original) A method according to claim 23 comprising carrying out maximal filtering.

30. (Original) A method according to claim 22 comprising carrying out minimal filtering.

31. (Original) A method according to claim 19, comprising concomitantly carrying out maximal filtering and minimal filtering, whilst sharing said comparison outputs.